Amendments to the Specification

Please replace the paragraph beginning on page 16, line 18 - page 17, line 14, with the following rewritten paragraph:

The sputtering apparatus is provided with a plurality of chambers 50, all of the same configuration. Each member 50 is configured with a target 51 that also acts as an electrode and an electrode 52 that also acts as a stage, wherein a substrate (wafer) W to be cooled is placed upon the electrode 52. The chamber 50 is provided with an exhaust device 160~~60~~ for evacuating the chamber and a first gas supply line 53 for supplying a gas to the chamber when aluminum sputtering is performed. The electrode 52 is configured in such a manner that a given space is formed between the electrode 52 and the wafer W when the wafer W is mounted on the electrode 52. More specifically, a protruding support 52a is provided around an outer periphery of the upper surface of the electrode 52, as shown in Figure 3B. A second gas supply line 54 is also connected to the electrode 52. A gas that acts as a heat transfer medium, such as argon, is supplied from the second gas supply line 54 into the space between the electrode 52 and the wafer W. Thus the electrode 52 also acts as a cooling system for cooling the wafer W. The temperature of the electrode 52 is controlled at a fixed level by a circulation of a coolant such as water from a coolant supply line 56. To ensure that gas is supplied uniformly to the above-mentioned space, grooves 58 are prepared in the upper surface of the electrode 52, for example as shown in Figure 3B, and an outlet 54a of the second gas supply line 54 is provided at a position at which the grooves intersect.

Please replace the paragraph beginning on page 17, lines 17-25, with the following rewritten paragraph:

The interior of the chamber 50 is held under vacuum of 6×10^{-6} Pa or less by the exhaust device 160~~60~~ and the wafer W is mounted on the support 52a of the electrode 52. The gas that is to act as a heat transfer medium between the electrode 52 and the wafer W is

introduced into the space between the electrode 52 and the wafer W from the second gas supply line 54, the pressure in this space is held at 600 to 1000 Pa, and the wafer W is cooled while the gas that escapes from this space is evacuated by the exhaust device 160~~60~~.

Please replace the paragraph beginning on page 19, line 19 - page 20, line 5, with the following rewritten paragraph:

A film of aluminum containing 0.2 to 1.0 wt. % of copper is first formed at a high speed by sputtering to a thickness of 150 to 300 nm at a temperature no more than 200°C, more preferably 30°C to 100°C, to form a first aluminum layer 34, which is shown in Fig. 1C. The substrate is then heated within the same chamber to between 350°C and 460°C, and another film of aluminum with a similar copper content is formed at a low speed by sputtering to a thickness between 300 and 600 nm, to form a second aluminum layer 35, which is also shown in Fig. 1C. Referring to the above description, although the term "high speed" used during the formation of the aluminum layers depends on the film forming conditions or design details of the device being fabricated and thus cannot be specified unconditionally, it generally means a sputtering speed of about 10 nm/s or more, whereas a "low speed" means a sputtering speed of 3 nm/s or less.

Please replace the paragraph beginning on page 21, line 17 - page 22, line 11, with the following rewritten paragraph:

During the formation of aluminum layers, controlling the power applied to the sputtering apparatus is important, as is controlling the film-formation speed and the substrate temperature. In other words, with regard to the film formation speed, it is important that the first aluminum layer 34 (shown in Fig. 1C) be formed at a high power and the second aluminum layer 35 (shown in Fig. 1C) be formed at a low power, and at the same time the power must not fall to zero when the power is switched from high to low. If the power falls to zero, an oxide layer will form on the surface of the first aluminum layer even under

reduced pressure, causing the wettability of the second aluminum layer to the first aluminum layer to deteriorate and the adhesiveness between them to worsen. In other words, applying power constantly ensures that active aluminum is supplied continuously to the surfaces of the aluminum layers during the film formation, making it possible to suppress the formation of oxide layers. Note that the magnitude of the power depends on factors such as the sputtering apparatus and film-formation conditions, and thus cannot be specified unconditionally. However, it is preferable to set a high power level to a range between 5 kW to 10 kW and a low power level to 300 W to 1 kW under the temperature conditions shown in Figure 4, by way of example.

Please replace the paragraph beginning on page 23, lines 5-17, with the following rewritten paragraph:

As shown in Fig. 1C, a~~A~~ reflection prevention layer 36 with a thickness of 30 to 80 nm is then formed by depositing TiN in a separate sputtering chamber. Subsequently, the stack consisting of the aforementioned barrier layer 33, the first aluminum layer 34, the second aluminum layer 35, and the reflection prevention layer 36 is selectively etched by an anisotropic dry etcher using Cl_2 and BCl_3 as the main etchant gases, to pattern a metal wiring layer 40.

It has been confirmed that in the metal wiring layer 40 (shown in Fig. 1C) as prepared in the aforementioned manner, a contact hole of a diameter of 0.2 to 0.8 μm and with an aspect ratio of 0.5 to 3 can be filled with aluminum with good step coverage and without creating any voids.

Please replace the paragraph beginning on page 25, line 20 - page 26, line 7, with the following rewritten paragraph:

In the present embodiment, since a wetting layer, for example a Ti film, can hold gaseous components (oxygen, hydrogen, water vapor, and nitrogen) dissolved therein, to as

much as several atomic percentages, removing the gaseous components from the interlayer dielectric I2 prior to the formation of the wetting layer is extremely effective for forming a good aluminum layer within a via-hole. If the gaseous components in the interlayer dielectric I2 underneath the wetting layer are not removed sufficiently, the gaseous components within the interlayer dielectric I2 will be released during the formation of the wetting layer, and these gases will be taken up into the wetting layer. In addition, these gases will be desorbed from the wetting layer and will exit from the interface with the aluminum layer during the formation of the aluminum layer, which will adversely affect the adhesiveness and fluidity of the aluminum layer. The wetting layer may also include zirconium.